

Fam. *Limacodidæ*.*Thosea cervina*.

Male. Upperside greenish fawn-colour: fore wing with a transverse discal narrow slightly curved dark brown band; a black spot at end of the cell. Underside uniform brown; a white spot at base of antennæ and on fore tibiæ.

Exp. $1\frac{2}{8}$ inch.

Hab. Ceylon. In coll. F. M. Mackwood.

Belippa ferruginea.

Male and female. Ferruginous. Cilia purplish cinereous: fore wing washed with chalybeous scales at the base, disk, and the apex; crossed by a subbasal darker sinuous band, a black-speckled spot at lower end of cell, and a large white-speckled black spot at apex of wing: hind wing paler ferruginous, with a small black-speckled spot at apex, and a short streak at anal angle. Abdomen with a slight dorsal black segmental fringe. Underside paler than above, the black apical spot on fore wing prominent, those on hind wing less so. Tibiæ with a terminal black streak.

Exp. ♂ $1\frac{2}{8}$, ♀ $1\frac{1}{8}$ inch.

Hab. Ceylon. In coll. F. M. Mackwood and F. Moore.

Fam. *Cossidæ*.*Zenzera nigra*.

Female. Black; both wings and thorax numerouslly speckled with white. Wings narrow, acute at the apex. Body long and slender.

Exp. $1\frac{4}{8}$ inch.

Hab. Ceylon. In coll. F. M. Mackwood.

XLVI.—On a Collection of *Lepidoptera* obtained by the Rev. S. J. Whitmee from Lifu (*Loyalty Group*), with Descriptions of the new Species. By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

THE present collection is interesting, not only as containing several beautiful novelties and examples of one or two of the rarer species of the Pacific Ocean, but from the close affinity of the butterflies to those of New Caledonia—many of the

species, indeed, being identical. Of course, this is just what one might have expected; but still it is very satisfactory to know the truth, since it proves the local constancy of the species.

RHOPALOCERA.

Family *Nymphalidæ*.

DANAINÆ, Bates.

DANAIS, Latreille.

1. *Danais pumila*, Boisduval (No. 12).

Previously received from New Caledonia and Maré.

2. *Danais affinis*, Fabricius.

Quite common.

3. *Danais archippus*, Fabricius (No. 24).

Said to be rare in Lifu, but common in Samoa.

EUPLÆA, Fabricius.

4. *Euplœa torvina*, Butler (No. 7).

Previously known from Aneiteum.

5. *Euplœa Whitmei*, n. sp. (No. 4).

Allied to *E. Eschscholtzii*, but olivaceous brown, fading away externally into a broad greyish border: primaries with a small white spot near the costa just beyond the end of the cell, three still smaller, placed obliquely near the apex, and two of about the same size on the median interspaces; secondaries with a discal row of small spots and a submarginal row of smaller spots in couples: body black-brown, head spotted with white. Wings below even paler than above: primaries with a small Γ -shaped spot in the cell, and two or three smaller spots beyond it, all lilacine white; remaining spots as above, traces of three or four white submarginal points near external angle: secondaries with a spot in the cell, four decreasing spots above it and two below it, all lilacine white; remaining spots as above: body below black, pectus white-spotted. Expanse of wings 2 inches 7 lines.

Readily distinguished from all its allies by its pale colouring and the punctiform character of all the white spots of primaries. It seems to be a common and perfectly constant species.

SATYRINÆ, Bates.

MELANITIS, Fabricius.

6. *Melanitis Solandra*, Fabricius.

Common, and exhibiting three marked variations of pattern in the coloration of the under surface.

NYMPHALINÆ, Bates.

CHARAXES, Ochseneheimer.

7. *Charaxes clitarchus*, Hewitson.

Previously known from New Caledonia and Maré. The present is the only really fairly perfect example that has yet been seen.

JUNONIA, Hübner.

8. *Junonia villida*, Fabricius.

Common.

DIADEMA, Fabricius.

9. *Diadema nerina*, Fabricius.

In addition to the typical form there are two female varieties—one in which the orange internal patch of primaries is replaced by a small pale brownish spot, and the pale submarginal spots have almost died out, the other a modification of the normal variety *D. proserpina*, Cramer, tending to approach *D. pallescens*; of the latter I only found one example, which may therefore possibly be a cross between *D. nerina* and *D. pallescens*.

10. *Diadema pallescens*, Butler.

Evidently rare in Lifu, its head quarters seem to be Fiji.

11. *Diadema octocula* ♀, Butler.

Two examples of what appeared to be this insect: but I saw them with the wings closed; so that they may be refer-

able to the next species. It has previously come from Vaté and Totoya.

12. *Diadema elsina*, n. sp. (No. 9).

Allied to *D. octocula*, but readily and constantly distinguished by the following characters. Primaries shorter, the orange or tawny belt beyond the cell considerably darker and narrower and with straight margins joining a submarginal streak of the same colour, which tapers from the internal margin, almost to the upper discoidal vein, and encloses a small black ocellus near external angle: secondaries with the broad discal tawny area much deeper in colour, uniform in both sexes, but crossed by similar black ocelli; outer border much narrower and intersected by a tawny line. Primaries below differing principally in the width and straightness of the oblique tawny band; secondaries with the outer border more regular and usually clouded with brown to just beyond the ocelli. Expanse of wings ♂ 2 inches 10 lines, ♀ 3 inches 3 lines.

I have examined four or five examples of this species.

13. *Diadema lifuana*, n. sp. (No. 9).

Allied to the two preceding species, but smaller, darker, and with differently ornamented primaries.

♂. Above dark chocolate-brown; a tapering submarginal streak of dull deep tawny, enclosing a large black spot near external angle: secondaries with a broad, regular, deep, tawny discal belt, crossed by black veins and traversed by a series of eight rather small black spots; outer border chocolate-brown, bounded within by a well-marked black edge: body dark chocolate-brown. Wings below chocolate-brown, becoming paler towards the outer margin; a rather thick undulated submarginal line and a narrower marginal line, both black: primaries with the subcostal area black in the cell and crossed by two greyish white spots; a pale brown diffused streak across the end of the cell, and beyond it a subcuneiform pale testaceous patch, its broadest part in the costal nervure, diffused externally and fading away as it reaches the lower radial nervure; two subapical white spots, and six black spots with bluish-white centres crossing the disk: secondaries with the disk, from its centre to the outer margin, abruptly testaceous, tinted internally with pink, crossed in the middle by a series of eight rounded black spots with white pupils and broad pyriform chocolate zones; a white subanal litura between the submarginal and marginal lines:

body below smoky brown, palpi white at the sides and black below. Expanse of wings 2 inches 9 lines.

♀. Paler than the male, the primaries with a tapering dull ochraceous streak from the costa just beyond the end of the cell to near the second median branch, and six white dots, from the costal vein to the second median interspace, parallel to the outer margin; an indistinct black spot above the sub-anal one; the submarginal streak replaced by an ill-defined dusky patch; the apical area smoky brown, with the outer border darker: secondaries with the broad discal belt bright ochreous, and the outer border uniformly dark chocolate-brown; secondaries altogether paler, with the markings more strongly defined than in the male; otherwise similar. Expanse of wings 2 inches 10 lines.

This can, I think, scarcely be a variation of the preceding species; the absence of the well-marked oblique belt in the male and the restricted and differently formed belt in the female are very characteristic; the borders of the secondaries in the two sexes are also very unlike those of *D. elsina*.

CYRESTIS, Boisduval.

14. *Cyrestis Whitmei*, n. sp.

Pure white, ornamented with colours and markings nearly as in *C. achates*, but intermediate in character between that species and *C. nivea*: it differs from *C. achates* as follows:—

The blackish lines across the basal area more slender and straighter; the bluish-centred belt across the cell of primaries less oblique and with its sides parallel, the lines closing the cell (one of which represents the lower discocellular) also more parallel; the apical portion of the outer border broader, with the two ocelli upon it less distinctly made out and with white pupils; the outer border darker and rather narrower; the bluish-centred stripe which crosses the lower part of the disk of primaries and the disk of secondaries uniform with the white stripe which follows it, so as to do away with the appearance of incipient ocelli, which at once strikes the eye in *C. achates*; the subanal ochreous patch in primaries smaller; the secondaries distinctly shorter, the anal angle being less produced; the caudal appendage more slender; the streak from the apex to the anal angle dark brown, but slightly washed with ochraceous below the third median branch; only a single slender submarginal black line from the apex to the base of the tail, but from there to the second median branch two regular thick black stripes. Expanse of wings 2 inches 1 line.

This is a well-marked species, of the size and with the aspect of *C. nivea*, but in its ornamentation more nearly agreeing with *C. achates*.

ATELLA, Doubleday.

15. *Atella egistina*, Quoy and Gaimard (No. 10).

This species appears to be extremely common at Lifu; it occurs also at Maré. I was at first disposed to regard it as a variety of *A. Bowdenia* (see P. Z. S. 1875, p. 614).

ACRÆINÆ, Bates.

ACRÆA, Fabricius.

16. *Acræa andromacha*, Fabricius.

As pointed out by Herr Schmeltz, I was correct in my original notice of this species as an inhabitant of the Islands of the South Pacific; it does not, however, appear to be common.

Family Erycinidæ.

LIBYTHEINÆ, Bates.*

LIBYTHEA, Fabricius.

17. *Libythea quadrinotata*, n. sp.

Primaries dark brown, shining and tinted with ochraceous towards the base, with a diffused ochraceous patch on the inner margin; a spot in the end of the cell, and a large patch (crossed by the second median branch) on the disk, pinky white, edged with ochraceous; a bifid subcostal white spot beyond the cell, and a subsinuate bifid discal spot towards the apex, white: secondaries with the basal area sordid subochraceous; external area dark brown; a broad fascia, very wide on the abdominal margin, and gradually narrowing to near the apex, and a subapical spot above its extremity, ochreous: body above brownish olivaceous. Primaries below grey, the cell ochraceous; the four spots as above, but all white, the discal area enclosed by them dark brown: secondaries lilacine greyish, speckled with red-brown and crossed, near the base of the

* Mr. Scudder proposes to regard this as an abnormal group of the *Nymphalidæ*; but I cannot agree with him in this.

median branches, by a paler belt: body below sordid whitish. Expanse of wings 2 inches 3 lines.

A very distinct species, not nearly allied to any other yet described.

Family *Lycænidæ*.

LAMPIDES, Hübner.

18. *Lampides caledonica*, Felder.

Closely allied to *L. platissa*, but smaller.

19. *Lampides florinda*, n. sp. (No. 16).

♂. Wings above ultramarine blue: primaries with a narrow dark brown outer border; fringe white externally: secondaries with the costal area brown, the outer border macular, narrowly dark brown, the spot above the tail black, surmounted by a narrow orange lunule; fringe white, spotted with brown; body above grey. Wings below chalky white, with a marginal blackish line; a submarginal series of small dots mostly brown, surmounted by a lunulated slender brown line; an irregular chain-like series of brown-bordered sordid spots (the series of secondaries angulated) across the disk; the cells closed by a double brown litura: primaries with a double line across the cell, and a brown-edged spot beyond the centre of the costa: secondaries with a slightly angular series of brown-edged spots from the costa across the cell; one or two brown lines on the abdominal margin; a black spot surmounted with orange above the tail, and a smaller one near anal angle; all the brown-edged spots on the under surface with snow-white borders: body below snow-white. Expanse of wings 1 inch 1 line.

A very distinct species.

Family *Papilionidæ*.

PIERINÆ, Swainson.

ELODINA, Felder.

20. *Elodina pseudanops*, n. sp. (No. 13).

Wings above smoky brown: primaries darker than the secondaries; an oblique pale sulphur-yellow patch crossing the end of the cell, and divided at its inferior extremity (which is rounded) by the second median branch, its anterior margin

sinuated; fringe testaceous: secondaries with a large semi-circular sulphur-yellow patch, dentated externally, from the subcostal nervure, across the end of the cell, to the second median branch; fringe white, tinted with testaceous towards anal angle: head white, with red eyes; antennæ black and white above, tawny below; thorax olivaceous, abdomen brown. Primaries below sulphur-yellow; the disk crossed by a broad C-shaped black belt; apex, apical costa, and outer margin silvery white, inner margin broadly grey: secondaries silvery white; the disk crossed by two or three red-brown spots; a similar discocellular spot: body below white, tibiæ and tarsi sulphur-yellow, tarsal claws blackish. Expanse of wings 1 inch 5 lines.

Not unlike the females of some species of *Anops* and *Holochila*.

TERIAS, Swainson.

21. *Terias sulphurata*, Butler.

Occurs also at Maré.

22. *Terias sinapina*, n. sp. (No. 1).

Wings above bright sulphur-yellow: primaries with the costal margin narrowly black; a rather broad external border, irregularly notched internally towards apex, bisinuated (to the depth of rather more than a millimetre) between the median branches: secondaries with black dots at the end of the veins, connected towards the apex by marginal black scales: body above olivaceous. Wings below bright sulphur-yellow, all the veins terminating in black dots; primaries with a few brown scales in the cell, and a few more forming an imperfect annulus on the upper discocellular; secondaries with an irregular double discocellular brown line surrounded by an annular series of spots formed of little groups of brown scales: body below yellow. Expanse of wings 1 inch 7 lines.

Somewhat like *T. Desjardinsii* of Africa.

23. *Terias lifuana*, n. sp.

Allied to the preceding species, but smaller, with the outer border of primaries rather narrower and much less distinctly bisinuated, also with the markings of the under surface much more strongly defined. Expanse of wings 1 inch 5 lines.

Not like any other species known to me.

CATOPSILIA, Hübner.

24. *Catopsilia lactea*, Butler.

Previously known from Erromanga, the Solomon group, and Australia.

APPIAS, Hübner.

25. *Appias ega*, Boisduval.

A common Australian species.

BELENOIS, Hübner.

26. *Belenois terranea*, n. sp.

♂. Wings above creamy white, the base grey: primaries with the costa grey towards the base, but becoming black at the end of the costal vein; apical area black, slightly excised internally between the subcostal branches, deeply excavated between the lower radial and third median, and between the first and second median branches, crossed by five externally acuminate creamy white spots: body grey, with the head and prothorax red-brown. Primaries below creamy white, becoming chalky towards the inner border; apical area sordid sandy brown, sinuated internally and tapering to the first median branch; the costa earthy brown, emitting, beyond the cell, a transverse projection, below which are three semi-connected black spots on the disk: secondaries pale earthy brown, with a discal series of five darker spots; abdominal and anal margins yellow: body white, clothed with reddish testaceous hairs. Expanse of wings 2 inches 4 lines.

Allied to *B. periclea*.

27. *Belenois peristhene*, Boisduval.

Previously known from New Caledonia, Erromanga, Aneityum, and New Ireland.

PAPILIONINÆ, Swainson.

28. *Papilio gelon*, Boisduval.

Originally described from New-Caledonian examples.

29. *Papilio abstrusus*, Butler.

The type was from Maré.

30. *Papilio Montrouzieri*, Boisduval.

The type was from New Caledonia.

Family **Hesperiidæ**.

HESPERIA, Fabricius.

31. *Hesperia atrox*, n. sp.

Wings above shining chocolate-brown; primaries tinted with testaceous towards the base, with four sordid whitish hyaline spots (arranged like eyes, nose, and mouth) across the centre of the wing; secondaries, with the exception of the costal and external borders and the veins, testaceous; head and thorax olivaceous, the crest and upper surface of palpi blackish; abdomen black, banded with testaceous: wings below chocolate-brown; primaries with hyaline spots as above, the lowermost spot extended to the internal margin; secondaries with the external area slightly paler than the rest of the wing; a large blackish anal patch, surmounted by a whitish spot; legs and antennæ below reddish. Expanse of wings 2 inches.

HETEROCERA.

Family **Sphingidæ**.

SPHINGINÆ, Butler.

PROTOPARCE, Burmeister.

32. *Protoparce distans*, Butler.

A common species in New Zealand.

Family **Catephidæ**.

COCYTODES, Guénée.

33. *Cocytodes modesta*, Guénée.

The blue spots in secondaries are of a rather purer colour than in the Javan type; but otherwise there seems to be no difference.

Family **Ophideridæ**.

OPHIDERES, Boisduval.

34. *Ophideres dioscorea*, Fabricius.

Doubtless a modification of *O. fullonica*.

Ann. & Mag. N. Hist. Ser. 4. Vol. xx.

Family Ommatophoridae.

SPEIREDONIA, Hübner.

35. *Speiredonia simplex*, n. sp.

Wings above olive-brown, shot with lilacine towards the external margin, with the outer border broadly paler, limited internally by a pale-edged, dusky, irregular, discal band diffused on its inner margin; a dark brown submarginal lunulated line, and a second similar marginal line: primaries with the basal two thirds of the costal area whitish brown, regularly banded with broad dull blackish transverse patches; a double irregular streak crossing the end of the cell and separating into two diverging double blackish lines below the median vein; a large 3-shaped black-edged marking beyond the cell, its lower half enclosing a purplish spot streaked with blue and spotted with white, so as to form an incipient ocellus: secondaries crossed in the middle by a zigzag blackish line, bordered on each side by a pale brown line: body greyish brown, with the segmentations of the abdomen paler, the head and tegulae clouded with testaceous. Wings below shining brown, crossed in the centre by a dusky narrow band interrupted in the secondaries by two blackish spots; primaries woolly towards the base, a whitish spot near external angle: secondaries crossed near the base by a second indistinct dusky band; a submarginal series of whitish spots; fringe grey: body below grey, the coxæ of legs whitish. Expanse of wings 2 inches 6 lines.

This species in the comparative simplicity of its markings resembles the genus *Dasypodia*.

Family Boarmiidae.

BOARMIA, Treitschke.

36. *Boarmia lichenina*, n. sp.

Wings above grey mottled with brown; the disk reddish, the outer border white speckled with black and crossed by yellowish veins; cells closed by brown-edged white lunate spots; two central transverse dentate black lines—those of the primaries wide apart, with a dusky line between them connecting the lunate spot with the costal and inner margins; a multisinuate white line, bordered on each side with dark grey, separating the discal and external areas; a marginal series of black spots between the veins; fringe white, speckled with brown: body whitish, the abdomen narrowly banded with brown. Wings below white, with a large rounded black spot

at the end of each cell; an elbowed discal line across each wing: primaries with the external area broadly blackish, interrupted at apex and on the second median interspace by white quadrate spots; fringe white: secondaries with crenate white outer border, indicated by an internal blackish discal streak; black marginal dots less distinct than above: body below white. Expanse of wings 1 inch 8 lines.

A well-defined species.

BIBLIOGRAPHICAL NOTICE.

Researches on the Fossil Remains of the Extinct Mammals of Australia; with a Notice of the Extinct Marsupials of England. By RICHARD OWEN, C.B., F.R.S. Two vols. 4to. Exrleben: London, 1877.

THIS work may be regarded as a supplementary volume to the original edition of Cuvier's '*Recherches sur les Ossements Fossiles*' (4to, 1821). In that work but one extinct species had been referred to the marsupial order, viz. the famous *Didelphys gypsorum* (vol. iii. pl. lxxi.), and the osteology of the existing species is not described as in the case of the placental Mammalia of which the fossil evidences are there so richly illustrated. The author of the present work has accordingly added descriptions and figures of the osteology and dentition of the existing Marsupialia to those of the fossil remains of the extinct species; the characteristics of the bony structure and teeth of the wombats and kangaroos are shown in detail. As in the great work of Cuvier, the several memoirs by which the discoveries and determinations of the fossils were first made known are reproduced with additional matter and in systematic order. A chapter is premised on the fossil Marsupials of England, with figures illustrative of twenty-eight species, referable to fifteen genera. Of the extinct Marsupials which have left their remains in Rhætic, Oolitic, and Purbeck deposits in England, some exemplify or prefigure, in a singular and interesting manner, genera and species of Marsupials which have left their remains in the comparatively recent drift-deposits and in the caves of Australia.

The author, quoting the remark of Cuvier, "Quant aux genres propres à l'Australasie, on n'en avoit jamais découvert parmi les fossiles d'Europe" ('*Recherches sur les Ossements Fossiles*,' 4to, 1821, vol. iii. p. 292), remarks "it needed to go far below the tertiary beds to find the mammalian fossils most allied to those of Australia" (Preface, p. vi). He then states, "The teeth representing the Rhætic *Microlestes* find their nearest resemblance in the disproportionately small hind molars of *Thylacoleo*. The *Plagiailax* of the Purbeck beds pushes the correspondence to the shape and disproportionately large size of the incisors and sectorials; and the foremost